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L1	2	"20040041838"	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:26
L2	3	"20020190919"	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:27
L3	326	dual with (monitor screen display crt lcd) and internet and (ad commercial banner) and (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:41
L4	192	3 and (view\$4 retriev\$4 display\$\$) same (content data) same (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:30
L5	192	3 and (view\$4 retriev\$4 output\$4 display\$\$) same (content data) same (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:30
L6	24	5 and ((video near graphics adj adapter) VGA)	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:31
L7	20	5 and ((video near graphics adj adapter) VGA) AND PROCESSOR	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:33
L8	3	5 and (FIRST SECOND) WITH ((video near graphics adj adapter) VGA) AND PROCESSOR	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:40
L9	5	("5373307" "5469183" "5726669" "5818425" "5953074").PN	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/26 11:37
L10	1	("6522309").URPN	USPAT	OR	ON	2005/10/26 11:39
L11	1	5 and first WITH ((video near graphics adj adapter) VGA) AND second WITH ((video near graphics adj adapter) VGA)	US-PGPUB; USPAT; EPO; JPO; DERWENT , IBM_TDB	OR	ON	2005/10/26 11:41

L12	522	first WITH ((video near graphics adj adapter) VGA) AND second WITH ((video near graphics adj adapter) VGA)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 12:10
L13	2	12 and dual with (monitor screen display crt lcd) and internet and (ad commercial banner) and (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 11:47
L14	7	12 and (dual multiple multi\$5) with (monitor screen display crt lcd) and internet and (ad commercial banner) and (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 11:49
L15	46	12 and (dual multiple multi\$5) with (monitor screen display crt lcd) and (internet network)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 11:50
L16	1	15 and (retriev\$4 view\$4 display\$4 view\$4) same (ad commercial banner) and (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 11:50
L17	1	15 and (retriev\$4 view\$4 display\$4 view\$4) same (ad commercial informaation banner) same (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 11:51
L18	22	15 and (retriev\$4 view\$4 display\$4 view\$4) same (ad commercial information banner) same (first second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 12:01
L19	12	15 and (retriev\$4 view\$4 display\$4 view\$4) same (ad commercial information banner) same (second) with (monitor screen display crt lcd)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 11:51
L20	4474	715/760-765,750-759;345/1.1,3.1,213,214. ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 12:02
L21	371	20 and (dual multiple) near5 (screen lcd crt monitor)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 12:03

L22	149	20 and (dual multiple) near5 (lcd crt monitor)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 12:03
L23	12	22 and processor and (internet network) and vga	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2005/10/26 12:03


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Relevance scale

1 [Organizational issues: Return on investment and organizational adoption](#)

Jonathan Grudin

 November 2004 **Proceedings of the 2004 ACM conference on Computer supported cooperative work**
Publisher: ACM Press

 Full text available: [pdf\(93.79 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper considers the complexity of measuring the return on investment for technology adoption. A brief case study of technology adoption in a large design and construction firm provides a clear view of factors that came into play. The technology considered is simple; the apparent costs and benefits are relatively clear. Four parties are involved: diverse employees interested in using dual monitors, the information technology support group in the organization, an executive who had worked h ...

Keywords: IT, ROI, adoption, displays, multiple monitors

2 [Partitioning digital worlds: focal and peripheral awareness in multiple monitor use](#)

Jonathan Grudin

 March 2001 **Proceedings of the SIGCHI conference on Human factors in computing systems**
Publisher: ACM Press

 Full text available: [pdf\(216.65 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Software today does not help us partition our digital worlds effectively. We must organize them ourselves. This field study of users of multiple monitors examines how people with a lot of display space arrange information. Second monitors are generally used for secondary activities related to principal tasks, for peripheral awareness of information that is not the main focus, and for easy access to resources. A second monitor improves efficiency in ways that are difficult to measure yet can ...

Keywords: awareness, displays, multiple monitors

3 [Improving interaction: Display space usage and window management operation](#)
[comparisons between single monitor and multiple monitor users](#)

Dugald Ralph Hutchings, Greg Smith, Brian Meyers, Mary Czerwinski, George Robertson

 May 2004 **Proceedings of the working conference on Advanced visual interfaces**
Publisher: ACM Press

 Full text available: [pdf\(91.48 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The continuing trend toward greater processing power, larger storage, and in particular increased display surface by using multiple monitor supports increased multi-tasking by the computer user. The concomitant increase in desktop complexity has the potential to push the overhead of window management to frustrating and counterproductive new levels. It is difficult to adequately design for multiple monitor systems without understanding how multiple monitor users differ from, or are similar to, si ...

Keywords: UI logs, automation, multiple monitors, space management, user interaction, window management

4 [Hardware-accelerated real-time simulation of arbitrary visual fields](#)

 Andrew T. Duchowski

March 2004 **Proceedings of the Eye tracking research & applications symposium on Eye tracking research & applications**

Publisher: ACM Press

Full text available:  [pdf\(501.57 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Recent advancements in computer graphics hardware have made it possible to develop hardware-accelerated real-time imaging displays. This poster presents technical details of an OpenGL multitexturing approach for real-time simulation of arbitrary visual fields over a still image. Mipmapping facilitates in-hardware dyadic (power-of-two) degradation of the image to serve as the low-resolution periphery. Multitexture compositing provides a mechanism to combine the image's high-resolution pixels with ...

5 [GLUMM: an application programming interface for multi-screen programming in a windows environment](#)

 Daniel C. Cliburn

April 2003 **Journal of Computing Sciences in Colleges**, Volume 18 Issue 4

Publisher: Consortium for Computing Sciences in Colleges

Full text available:  [pdf\(134.49 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The state of the art in Virtual Reality (VR) and Immersive Visualization software today often requires multiple screens or display devices. This additional screen space can offer many views into the same scene or provide an abundance of screen space for maximum display of information. There are many APIs in existence for development of software that can take advantage of multiple screens, however, few support development in a Windows environment (most are for some variant of the UNIX operating s ...

6 [Putting OO distributed programming to work](#)

 Pascal Felber, Rachid Guerraoui, Mohamed E. Fayad

November 1999 **Communications of the ACM**, Volume 42 Issue 11

Publisher: ACM Press

Full text available:  [pdf\(117.85 KB\)](#)  [html\(26.58 KB\)](#) Additional Information: [full citation](#), [index terms](#)

7 [Workshops: Distributed display environments](#)

 Dugald Ralph Hutchings, John Stasko, Mary Czerwinski

April 2005 **CHI '05 extended abstracts on Human factors in computing systems**

Publisher: ACM Press

Full text available:  [pdf\(33.94 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

8 [Developing web-based video training modules to aid students learning multimedia skills](#)

John Minor Ross, Kathryn R. Ross

December 2005

Journal of Computing Sciences in Colleges, Volume 21 Issue 2**Publisher:** Consortium for Computing Sciences in CollegesFull text available:  pdf(373.54 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

Ten years after its first offering, support for student learning in a multimedia course has expanded to include custom-made, web-based demonstration videos. The rationale for such videos and the details of their creation are described.

9 Designing better visual interfaces: Shrinking window operations for expanding display space 

Dugald Ralph Hutchings, John Stasko

May 2004 Proceedings of the working conference on Advanced visual interfaces**Publisher:** ACM PressFull text available:  pdf(146.49 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Recent research and technology advances indicate that multiple monitor systems are likely to become commonplace in the near future. An important property of such systems is that the physical separation of the display prompts users to place windows entirely within monitors, and thus does not fully alleviate the problem of managing windows on smaller monitors. Another finding about multiple monitor systems is that an additional monitor often holds windows that help the user maintain awareness rath ...

Keywords: multiple monitors, relevant regions, window operations**10 Advancing interaction: DeepDocument: use of a multi-layered display to provide context awareness in text editing** 

Masood Masoodian, Sam McKoy, Bill Rogers, David Ware

May 2004 Proceedings of the working conference on Advanced visual interfaces**Publisher:** ACM PressFull text available:  pdf(329.78 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Word Processing software usually only displays paragraphs of text immediately adjacent to the cursor position. Generally this is appropriate, for example when composing a single paragraph. However, when reviewing or working on the layout of a document it is necessary to establish awareness of current text in the context of the document as a whole. This can be done by scrolling or zooming, but when doing so, focus is easily lost and hard to regain. We have developed a system called DeepDocument us ...

Keywords: Deep Video™, Microsoft Word™, context awareness, multi-layered display, text editing, word processing**11 Improving interaction: Scalable Fabric: flexible task management** 

George Robertson, Eric Horvitz, Mary Czerwinski, Patrick Baudisch, Dugald Ralph Hutchings, Brian Meyers, Daniel Robbins, Greg Smith

May 2004 Proceedings of the working conference on Advanced visual interfaces**Publisher:** ACM PressFull text available:  pdf(138.89 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Our studies have shown that as displays become larger, users leave more windows open for easy multitasking. A larger number of windows, however, may increase the time that users spend arranging and switching between tasks. We present *Scalable Fabric*, a task management system designed to address problems with the proliferation of open windows on the PC desktop. Scalable Fabric couples window management with a flexible visual representation to provide a focus-plus-context solution to deskto ...

Keywords: interaction, scaling, spatial memory, task management

12 Late breaking result papers: Automatic support for web user studies with SCONE and TEA



Hartmut Obendorf, Harald Weinreich, Torsten Hass

April 2004 **CHI '04 extended abstracts on Human factors in computing systems**

Publisher: ACM Press

Full text available: [pdf\(286.38 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes the concepts of TEA, a flexible tool that supports user tests by automating repetitive tasks and collecting data of user inputs and actions. TEA was specifically designed for user studies in the World Wide Web and is able to interact with a web browser. Building on a web intermediary (WBI) and a framework for web enhancement tools (SCONE), TEA can be applied in a range of test settings - providing either a controlled laboratory environment or a quick tool for collecting info ...

Keywords: WWW, test automation, usability testing methods

13 Graphic time-sharing with real-time data bases



Jesse B. Hillman

August 1969 **Proceedings of the 1969 24th national conference**

Publisher: ACM Press

Full text available: [pdf\(770.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This system is being developed to process flight test data for the McDonnell-Douglas Corporation to significantly reduce flight test development and certification time and to reduce data processing costs. It is a time-sharing system using graphic cathode ray tube terminals. The system consists of nine processors: a Sigma 7 central processing unit, three general-purpose input/output processors, two special telemetry decommutator channels and three Sigma 2 central processor units. < ...

14 Interesting program representations: 3D representations for software visualization



Andrian Marcus, Louis Feng, Jonathan I. Maletic

June 2003 **Proceedings of the 2003 ACM symposium on Software visualization**

Publisher: ACM Press

Full text available: [pdf\(3.06 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The paper presents a new 3D representation for visualizing large software systems. The origins of this representation can be directly traced to the SeeSoft metaphor. This work extends these visualization mechanisms by utilizing the third dimension, texture, abstraction mechanism, and by supporting new manipulation techniques and user interfaces. By utilizing a 3D representation we can better represent higher dimensional data than previous 2D views. An overview of our prototype tool and its basic ...

Keywords: 3D visualization, SeeSoft, file maps, software visualization

15 GFX: Linux graphics drivers

Robin Rowe

April 2002 **Linux Journal**, Volume 2002 Issue 96

Publisher: Specialized Systems Consultants, Inc.

Full text available: [html\(17.10 KB\)](#) Additional Information: [full citation](#), [index terms](#)

16 Technical Session: Helping faculty make technology a part of the curriculum



Brian Gardner, Neil Clarke

October 2001 **Proceedings of the 29th annual ACM SIGUCCS conference on User services**

Publisher: ACM Press

Full text available:  pdf(184.04 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Drew University had a problem. Despite an early lead in ubiquitous computing, the use of technology in the curriculum had been sidetracked by the technology itself. Faculty were interested, but it wasn't clear where to turn to for support and advice. Small pilot projects were planted to seed larger grant applications. This led to a continuing program that gives faculty a single point of contact and many opportunities to get the experience and exposure they need to improve education through the a ...

Keywords: curriculum, faculty development, faculty lab, retention, summer workshops, training, ubiquitous computing

17 The notification collage: posting information to public and personal displays 

 Saul Greenberg, Michael Rounding

March 2001 **Proceedings of the SIGCHI conference on Human factors in computing systems**

Publisher: ACM Press

Full text available:  pdf(3.02 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The Notification Collage (NC) is a groupware system where distributed and co-located colleagues comprising a small community post media elements onto a real-time collaborative surface that all members can see. Akin to collages of information found on public bulletin boards, NC randomly places incoming elements onto this surface. People can post assorted media: live video from desktop cameras; editable sticky notes; activity indicator; slide shows displaying a series of digital photos, snaps ...

Keywords: awareness, informal interaction, media spaces, messaging

18 Reviews: Monarch ULB 64 2005 custom workstation 

Chris DiBona

December 2004 **Linux Journal**, Volume 2004 Issue 128

Publisher: Specialized Systems Consultants, Inc.

Full text available:  html(8.99 KB) Additional Information: [full citation](#)

19 Revisiting display space management: understanding current practice to inform next-generation design 

Dugald Ralph Hutchings, John Stasko

May 2004 **Proceedings of the 2004 conference on Graphics interface GI '04**

Publisher: Canadian Human-Computer Communications Society

Full text available:  pdf(219.97 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Most modern computer systems allow the user to control the space allocated to interfaces through a window system. While much of the understanding of how people interact with windows may be regarded as well-known, there are very few reports of documented window management practices. Recent work on larger display spaces indicates that multiple monitor use is becoming more commonplace, and that users are experiencing a variety of usability issues with their window systems. The lack of understanding ...

Keywords: display space management, interview, multiple monitors, window management

20 New products 

Linux Journal Staff

July 2004 **Linux Journal**, Volume 2004 Issue 128

Publisher: Specialized Systems Consultants, Inc.

Full text available: [html\(7.27 KB\)](#) Additional Information: [full citation](#)

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